

IN THE CLAIMS:

1. (Currently amended) A ~~router~~ method of alleviating congestion in a router when processing packets transmitted by computer systems having a congestion notification capability, said method comprising:

notifying said computer systems that said router is congested at a first level of congestion, wherein said first level of congestion is less than a second level of congestion, wherein at the second level of congestion the router tends to drop packets to relieve congestion, but wherein at the first level of congestion the router does not tend to drop packets to relieve congestion;
and

dropping packets transmitted by said computer systems after said notification and while the router is at the first level of congestion.

2. (Currently amended) The method according to claim 1, wherein said step of notifying further comprises the step of marking packets transmitted by said computer systems to indicate that said router is congested at the first level of congestion.

3. (Original) The method according to claim 1, further comprising the step of determining whether said computer systems have received said notification utilizing a table which includes a listing of computer system identifiers.

4. (Currently amended) The method according to claim 1, further comprising the steps of:

receiving, utilizing said router, a packet transmitted by ~~said~~ a first computer system;

determining, utilizing said router, whether said packet was transmitted subsequently to a receipt by said first computer system of ~~said~~ a marked packet;

in response to a determination that said packet was transmitted by said first computer system subsequently to said receipt of said marked packet, dropping, by said router, said packet; and

in response to a determination that said packet was not transmitted subsequently to said receipt of said marked packet, forwarding, by said router, said packet.

5. (Currently amended) The method according to claim 4, wherein the step of determining whether said packet was transmitted subsequently to said receipt of said marked packet further comprises the steps of:

in response to each receipt by said router of a packet transmitted by said first computer system, determining whether an identifier which identifies a connection between said first computer system and a second computer system is stored in a list of identifiers within said router; and

in response to a determination that said identifier which identifies said connection is stored in said list, determining that said packet was transmitted subsequently to said receipt of said marked packet.

6. (Original) The method according to claim 5, further comprising the step of in response to a determination that said identifier which identifies said connection is not stored in said list, determining that said packet was not transmitted subsequently to said receipt of said marked packet and storing said identifier in said list within said router.

7. (Original) The method according to claim 6, further comprising the step of including with said identifier a time stamp indicating a current time said packet was received by said router.

8. (Currently amended) The method according to claim 7, wherein the step of determining whether said packet was transmitted subsequently to said receipt of said marked packet further comprises the steps of:

in response to each receipt by said router of a second packet transmitted by said first computer system, determining whether said identifier is stored in said list; and

in response to a determination that said identifier which identifies said connection is included in said list, determining that said second packet was transmitted subsequently to said receipt of said marked packet.

9. (Currently amended) The method according to claim 8, wherein the step of in response to a determination that said identifier which identifies said connection is stored in said list, determining that said packet was transmitted subsequently to said receipt of said marked packet further comprises the steps of:

in response to a receipt of said second packet, calculating a ~~minimum~~ transmission time;

determining whether a current time is greater than said ~~minimum~~ transmission time;

in response to a determination that said current time is greater than said ~~minimum~~ transmission time, determining that said second packet was transmitted subsequently to said receipt of said marked packet; and

in response to a determination that said current time is equal to or less than said ~~minimum~~ transmission time, determining that said second packet was not transmitted subsequently to said receipt of said marked packet.

10. (Currently amended) The method according to claim 9, further comprising the step of calculating said ~~minimum~~ transmission time by adding said time stamp to a round trip time, said round trip time being a time required for a packet to travel from said first computer system to said second computer system and back to said first computer system.

11. (Currently amended) A computer program product for alleviating ~~router~~ congestion in a router when said router is processing packets transmitted by computer systems having a congestion notification capability, said computer program product comprising:

instructions means for notifying said computer systems that said router is congested at a first level of congestion, wherein said first level of congestion is less than a second level of congestion, wherein at the second level of congestion the router tends to drop packets to relieve congestion, but wherein at the first level of congestion the router does not tend to drop packets to relieve congestion; and

instruction means for dropping packets transmitted by said computer systems after said notification and while the router is at the first level of congestion.

12. (Currently amended) The product according to claim 11, wherein said instruction means for notifying further comprises: ~~comprising~~

instruction means for marking packets transmitted by said computer systems to indicate that said router is congested at the first level of congestion.

13. (Currently amended) The product according to claim 11, further comprising ~~the~~ instruction means for determining whether said computer systems have received said notification utilizing a table which includes a listing of computer system identifiers.

14. (Currently amended) The product according to claim 11, further comprising: instruction means for receiving, utilizing said router, a packet transmitted by said a first computer system;

instruction means for determining, utilizing said router, whether said packet was transmitted subsequently to a receipt by said first computer system of ~~said~~ a marked packet;

in response to a determination that said packet was transmitted by said first computer system subsequently to said receipt of said marked packet, instruction means for dropping, by said router, said packet; and in response to a determination that said packet was not transmitted subsequently to said receipt of said marked packet, instruction means for forwarding, by said router, said packet.

15. (Currently amended) The product according to claim 14, wherein said instruction means for determining whether said packet was transmitted subsequently to said receipt of said marked packet further comprises:

in response to each receipt by said router of a packet transmitted by said first computer system, instruction means for determining whether an identifier which identifies a connection between said first computer system and a second computer system is stored in a list of identifiers within said router; and

in response to a determination that said identifier which identifies said connection is stored in said list, instruction means for determining that said packet was transmitted subsequently to said receipt of said marked packet.

16. (Original) The product according to claim 15, further comprising in response to a determination that said identifier which identifies said connection is not stored in said list, instruction means for determining that said packet was not transmitted subsequently to said receipt of said marked packet and storing said identifier in said list within said router.

17. (Original) The product according to claim 16, further comprising instruction means for including with said identifier a time stamp indicating a current time said packet was received by said router.

18. (Original) The product according to claim 17, wherein said instruction means for determining whether said packet was transmitted subsequently to said receipt of said marked packet further comprises:

in response to each receipt by said router of a second packet transmitted by said first computer system, instruction means for determining whether said identifier is stored in said list; and

in response to a determination that said identifier which identifies said connection is included in said list, instruction means for determining that said second packet was transmitted subsequently to said receipt of said marked packet.

19. (Currently amended) The product according to claim 18, wherein said instruction means for in response to a determination that said identifier which identifies said connection is stored in said list, determining that said packet was transmitted subsequently to said receipt of said marked packet, further comprises:

in response to a receipt of said second packet, instruction means for calculating a ~~minimum~~ transmission time;

instruction means for determining whether a current time is greater than said ~~minimum~~ transmission time;

in response to a determination that said current time is greater than said ~~minimum~~ transmission time, instruction means for determining that said second packet was transmitted subsequently to said receipt of said marked packet; and

in response to a determination that said current time is equal to or less than said ~~minimum~~ transmission time, instruction means for determining that said second packet was not transmitted subsequently to said receipt of said marked packet.

20. (Currently amended) The product according to claim 19, further comprising instruction means for calculating said ~~minimum~~ transmission time by adding said time stamp to a round trip time, said round trip time being a time required for a packet to travel from said first computer system to said second computer system and back to said first computer system.

21. (Currently amended) A router system for alleviating congestion when processing packets transmitted by computer systems having a congestion notification capability, said router system comprising at least one router adapted to perform the steps of:

~~said router for~~ notifying said computer systems that said router is congested at a first level of congestion, wherein said first level of congestion is less than a second level of congestion, wherein at the second level of congestion the router tends to drop packets to relieve congestion, but wherein at the first

level of congestion the router does not tend to drop packets to relieve congestion; and
~~said router for~~ dropping packets transmitted by said computer systems after said notification and while the router is at the first level of congestion.

22. (Currently amended) The system according to claim 21, ~~further comprising wherein the at least one router is further adapted to perform the step of:~~
~~said router for~~ marking packets transmitted by said computer systems to indicate that said router is congested at the first level of congestion.

23. (Currently amended) The system according to claim 21 wherein the at least one router is further adapted to perform the step of: ~~21, further comprising said router for~~ determining whether said computer systems have received said notification utilizing a table which includes a listing of computer system identifiers.

24. (Currently amended) The system according to claim 21 wherein the at least one router is further adapted to perform the steps of: ~~21, further comprising:~~
~~said router for~~ receiving a packet transmitted by said a first computer system;
~~said router for~~ determining whether said packet was transmitted subsequently to a receipt by said first computer system of said a marked packet;
in response to a determination that said packet was transmitted by said first computer system subsequently to said receipt of said marked packet, ~~said router for~~ dropping said packet; and
in response to a determination that said packet was not transmitted subsequently to said receipt of said marked packet, ~~said router for~~ forwarding said packet.

25. (Currently amended) The system according to claim 24 wherein the at least one router is further adapted to perform the steps of: ~~24, wherein said router for determining whether said packet was transmitted subsequently to said receipt of said marked packet further comprises:~~

in response to each receipt by said router of a packet transmitted by said first computer system, ~~said router for~~ determining whether an identifier which identifies a connection between said first computer system and a second computer system is stored in a list of identifiers within said router; and in response to a determination that said identifier which identifies said connection is stored in said list, ~~said router for~~ determining that said packet was transmitted subsequently to said receipt of said marked packet.

26. (Currently amended) The system according to claim 24 wherein the at least one router is further adapted to perform the step of: 24, further comprising in response to a determination that said identifier which identifies said connection is not stored in said list, ~~said router for~~

determining that said packet was not transmitted subsequently to said receipt of said marked packet and storing said identifier in said list within said router.

27. (Currently amended) The system according to claim 26 wherein the at least one router is further adapted to perform the step of: 26, further comprising said router for including with said identifier a time stamp indicating a current time said packet was received by said router.

28. (Currently amended) The system according to claim 27, wherein said at least one router is further adapted to perform the steps of: router for determining whether said packet was transmitted subsequently to said receipt of said marked packet further comprises:

in response to each receipt by said router of a second packet transmitted by said first computer system, ~~said router for~~ determining whether said identifier is stored in said list; and

in response to a determination that said identifier which identifies said connection is included in said list, ~~said router for~~ determining that said second packet was transmitted subsequently to said receipt of said marked packet.

29. (Currently amended) The system according to claim 28, wherein said at least one router is further adapted to perform the steps of: ~~router for in response to a determination that said identifier which identifies said connection is stored in said list, determining that said packet was transmitted subsequently to said receipt of said marked packet, further comprises:~~

in response to a receipt of said second packet, ~~said router for~~ calculating a minimum transmission time;
~~said router for~~ determining whether a current time is greater than said minimum transmission time;
in response to a determination that said current time is greater than said minimum transmission time, ~~said router for~~ determining that said second packet was transmitted subsequently to said receipt of said marked packet; and
in response to a determination that said current time is equal to or than said minimum transmission time, ~~said router for~~ determining that said second packet was not transmitted subsequently to said receipt of said marked packet.

30. (Currently amended) The system according to claim 29 wherein the router is further adapted to perform the step of: ~~29, further comprising said router for~~ calculating said minimum transmission time by adding said time stamp to a round trip time, said round trip time being a time required for a packet to travel from said first computer system to said second computer system and back to said first computer system.